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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,730	04/24/2002	Hakan Dahloff	128. 833USN	8227
33369	7590	06/01/2005	EXAMINER	
FASTH LAW OFFICES (ROLF FASTH) 26 PINECREST PLAZA, SUITE 2 SOUTHERN PINES, NC 28387-4301			ALVO, MARC S	
			ART UNIT	PAPER NUMBER

1731

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/030,730	Applicant(s) DAHLOFF ET AL.	
	Examiner Steve Alvo	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 14, 2005, has been entered.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-12, 14, 15 and 17-22 are rejected under 35 U.S.C. under 35 U.S.C. 103(a) as obvious over WO 97/15715 or WO 98/23810 in view of KIRSCHNER et al (5,460,696) or CIRUCCI et al (5,690,786).

WO 97/15715 or WO 98/23810 teaches a first pump (1), a first mixer (2), a first oxygen delignification zone (3), a second pump (4), a second mixer (5) and a second oxygen delignification zone (6). If necessary, WO 97/15715 teaches an overpressure in the second delignification zone is 5 bar, 2-5 bar. WO 98/23810 teaches an overpressure in the second delignification zone is 5 bar, 2-5 bar (page 3, line 4) The first delignification zone of WO 97/15715 or WO 98/23810 can have a pressure of 4 bar. Thus the apparatus of WO 97/15715 or WO 98/23810 is capable of having a lower pressure in the first zone than the second zone. The claims are drawn to apparatus (system) not a method. The structure of WO 97/15715 or WO 98/23810 is capable of having a second stage pressure at least 4 bars higher than the first stage, e.g. 97/15715 or WO 98/23810 disclose a second stage pressure 5 bars. Clearly the first reactor

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of the first stage is capable of being operated at atmospheric pressure. WO 97/15715 or WO 98/23810 teaches that steam can be added to the mixer (5) between the first and second delignification zones. The difference between the claimed structure and that of WO 97/15715 or WO 98/23810 is that the steam and oxygen are added to a single mixer rather than to separate mixers. KIRSCHNER et al or CIRUCCI et al teaches that steam can be added prior to oxygen delignification in a separate mixer through a steam supply (KIRSCHNER et al [18] or CIRUCCI et al [low pressure steam]) in fluid communication with and attached to the second mixer, prior to the pump and chemical mixer for a more efficient bleaching process. It would have been obvious to add steam to a separate mixer prior to the second pump and mixer of WO 97/15715 or WO 98/23810 in the manner taught by KIRSCHNER et al or CIRUCCI et al. If necessary, WO 97/15715 teaches an overpressure in the second delignification zone is 5 bar, 2-5 bar (page 3, line 4) and a first delignification dwell time of 10- 30 minutes, **e.g. 10 minutes** and a dwell time in the second zone of 45-180 minutes, including 100 minutes. WO 98/23810 teaches an overpressure in the second delignification zone is 5 bar, 2-5 bar (page 3, line 4) and a first delignification dwell time of 5 to 30 minutes, **e.g. 5 minutes**, and a dwell time in the second zone of 45-180 minutes, including 50 minutes. If necessary it would have been obvious to choose the optimum parameters for the desired amount of delignification. Since the process of WO 97/15715 or WO 98/23810 is a continuous process, it would have been obvious that the volume of the vessel would have been directly related to the dwell time in the vessel. The time the pulp is in the vessel is directly related to the time it would take to pass from the bottom of the vessel to the top. The vessel would have to be 10 times longer to hold the pulp for 100 minutes instead of the 10 minutes of the first delignification stage. The use of a static mixer for the mixer second

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mixer of KIRSCHNER et al would have been obvious as KIRSCHNER et al teaches that a static mixer can be used to mix gas, e.g. steam, into the pulp, See KIRSCHNER et al, column 6, lines 5-8). See KIRSCHNER et al, column 5, line 57-65 or CIRUCCI et al, column 4, for introducing gas into the pulp through a static mixer having the gas introduced through holes into the pulp stream in a pulp conveyor. The process limitations cannot be given probative weight in an apparatus claim, e.g. the terms “dwell time”, “pressures” and “having a pumping effect to obtain a lower pressure” do not have probative weight in an apparatus claim.

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/15715 or WO 98/23810 in view of KIRSCHNER et al (5,460,696) or CIRRUCCI et al as applied to claim 12 above, and further in view of WO 96/30586.

WO 96/30586 teaches a control system for the oxygen delignification pulp where the temperature and pressure in the pulp are measured and the steam addition and pulp pump are controlled respectively. It would have been obvious to control the temperature and pressure of WO 97/15715 or WO 98/23810 using the control system of WO 96/30586.

Applicant's argument that there is no reason to add the steam mixer of KIRSHNER to the apparatus of WO 97/15715 or WO 98/23810 is not convincing as it would have been obvious to the routineer that using separate mixers would supply more control over the addition of steam and oxygen. Or CIRUCCI et al teaches in the paragraph bridging columns 4 and 5:

“The present invention, by using low cost, low pressure oxygen and available high pressure steam that is mixed in an ejector, wherein the high pressure steam acts as the motive fluid to enhance the pressure level of oxygen, while the oxygen constitutes the suction fluid to be pressurized, creates an elevated pressure, single phase, gas mixture at an appropriate pressure

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intermediate to the low pressure oxygen and the high pressure steam which can then be introduced into a pressurized pulp stream as a single gas phase to impart the heat of the high pressure steam to the pulp, while at the same time providing an unusually high level of dispersion of a gas phase oxygen in the pulp medium. Upon contact of the single phase gas mixture of steam and oxygen on the pulp, the steam condenses rapidly, leaving the oxygen in a well dispersed form intimately mixed with the pulp medium such that the gas/liquid interfacial area is higher than that achieved with prior art techniques. This enhances the rate of reaction while using the lowest cost oxygen, such as would be available at lower purities and lower pressures.”

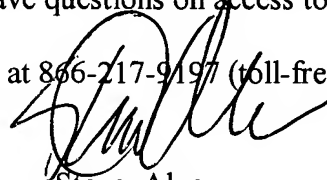
It would have been obvious to use the mixer, pump, mixer arrangement of CIRUCCI et al to enhance the rate of reaction while using the lowest cost oxygen, such as would be available at lower purities and lower pressures of WO 97/15715 or WO 98/23810.

The claimed structure would have been an obvious modification of the applied references.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steve Alvo
Primary Examiner
Art Unit 1731

msa